No. 200100287

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

USDA - Agriculture Research Service

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF TWENTY YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE PURPOSE , OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. IN THE UNITED STATES SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME ONLY AS A CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS SPECIFIED BY THE OWNER OF THE (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

SOYBEAN

'N7103'

In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D.C. this ninth day of April, in the year two thousand two.

Attest:

Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Secretary of Agriculture

REPRODUCE LOCALLY. *Include form number and date on all reproductions* — Form Approved - OMB No. 0581-0055

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY - PLANT VARIETY PROTECTION OFFICE

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

(Instructions and information collection burden statement on reverse)

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1 NAME OF OWNER
USDA- Agricultural Research Service

2. TEMPORARY DESIGNATION OR EXPERIMENTAL NAME
N94-7441

3. VARIETY NAME
N7103

4 ADDRESS *(Street and No., or R.F.D. No., City, State, and ZIP Code, and Country)*
3127 Ligon St.
Box 7631
Raleigh NC 27607

5. TELEPHONE *(include area code)*
(919) 513-1480

6. FAX *(include area code)*
(919) 856-4598

FOR OFFICIAL USE ONLY

PVPO NUMBER
20010287

FILING DATE
9/14/2001

7 IF THE OWNER NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION *(corporation, partnership, association, etc.)*
USDA-ARS (Gov. Agency)

8. IF INCORPORATED, GIVE STATE OF INCORPORATION

9. DATE OF INCORPORATION

10 NAME AND ADDRESS OF OWNER REPRESENTATIVE(S) TO SERVE IN THIS APPLICATION. *(First person listed will receive all papers)*
Thomas E. Carter, Jr.
3127 Ligon St.
Box 7631
Raleigh NC 27607

FEES RECEIVED

FILING AND EXAMINATION FEES:
$ 2,705.00
DATE 9/14/2001

CERTIFICATION FEE:
$ 320.00
DATE 2/27/02

11 TELEPHONE *(Include area code)*
(919) 513-1480

12. FAX *(Include area code)*
(919) 856-4598

13. E_MAIL
tommy_carter@ncsu.edu

14. CROP KIND *(Common Name)*
soybean

15 GENUS AND SPECIES NAME OF CROP
Glycine max

16. FAMILY NAME *(Botanical)*
Leguminosae

17. IS THE VARIETY A FIRST GENERATION HYBRID?
☐ YES ☒ NO

18. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED (Follow instructions on reverse)

a. ☒ Exhibit A. Origin and Breeding History of the Variety
b. ☒ Exhibit B. Statement of Distinctness
c. ☒ Exhibit C. Objective Description of Variety
d. ☐ Exhibit D. Additional Description of the Variety *(Optional)*
e. ☒ Exhibit E. Statement of the Basis of the Owner's Ownership
f. ☒ Voucher Sample *(2,500 viable untreated seeds or, for tuber propagated varieties, verification that tissue culture will be deposited and maintained in an approved public repository)*
g. ☐ Filing and Examination Fee ($2,450), made payable to "Treasurer of the United States" *(Mail to the Plant Variety Protection Office)*

19. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE SOLD AS A CLASS OF CERTIFIED SEED? *See Section 83(a) of the Plant Variety Protection Act)*
☐ YES *(If "yes", answer items 20 and 21 below)* ☒ NO *(If "no," go to item 22)*

20. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?
☒ YES ☐ NO

21. IF "YES" TO ITEM 20, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED?
☒ FOUNDATION ☐ REGISTERED ☒ CERTIFIED

22. HAS THE VARIETY (INCLUDING ANY HARVESTED MATERIAL) OR A HYBRID PRODUCED FROM THIS VARIETY BEEN SOLD, DISPOSED OF, TRANSFERRED, OR USED IN THE U. S. OR OTHER COUNTRIES?
☐ YES ☒ NO
IF YES, YOU MUST PROVIDE THE DATE OF FIRST SALE, DISPOSITION, TRANSFER, OR USE FOR EACH COUNTRY AND THE CIRCUMSTANCES. *(Please use space indicated on reverse.)*

23. IS THE VARIETY OR ANY COMPONENT OF THE VARIETY PROTECTED BY INTELLECTUAL PROPERTY RIGHT *(PLANT BREEDER'S RIGHT OR PATENT)*?
☐ YES ☒ NO
IF YES, PLEASE GIVE COUNTRY, DATE OF FILING OR ISSUANCE AND ASSIGNED REFERENCE NUMBER. *(Please use space indicated on reverse.)*

24. The owners declare that a viable sample of basic seed of the variety will be furnished with application and will be replenished upon request in accordance with such regulations as may be applicable, or for a tuber propagated variety a tissue culture will be deposited in a public repository and maintained for the duration of the certificate.

The undersigned owner(s) is(are) the owner of this sexually reproduced or tuber propagated plant variety, and believe(s) that the variety is new, distinct, uniform, and stable as required in Section 42, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.

Owner(s) is(are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF OWNER	SIGNATURE OF OWNER
Thomas E. Carter Jr	
NAME *(Please print or type)*	NAME *(Please print or type)*
Thomas E. Carter, Jr.	
CAPACITY OR TITLE: Research Geneticist — DATE: 2-01-01	CAPACITY OR TITLE — DATE

STT-470 ADDENDUM FOR 'N7103'

REPRODUCE LOCALLY. *Include form number and date on all reproductions*

Form Approved - OMB No. 0581-0055

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY - PLANT VARIETY PROTECTION OFFICE

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(Instructions and information collection burden statement on reverse)

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1. NAME OF OWNER

2. TEMPORARY DESIGNATION OR EXPERIMENTAL NAME

3. VARIETY NAME
N7103

4. ADDRESS *(Street and No., or R.F.D. No., City, State, and ZIP Code, and Country)*

5. TELEPHONE *(include area code)*

FOR OFFICIAL USE ONLY

PVPO NUMBER

6. FAX *(include area code)*

FILING DATE

7. IF THE OWNER NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION *(corporation, partnership, association, etc.)*

8. IF INCORPORATED, GIVE STATE OF INCORPORATION

9. DATE OF INCORPORATION

10. NAME AND ADDRESS OF OWNER REPRESENTATIVE(S) TO SERVE IN THIS APPLICATION. *(First person listed will receive all papers)*

FILING AND EXAMINATION FEES:
$
DATE

CERTIFICATION FEE:
$
DATE

11. TELEPHONE *(Include area code)*

12. FAX *(Include area code)*

13. E-MAIL

14. CROP KIND *(Common Name)*

18. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED (Follow instructions on reverse)

a. ☐ Exhibit A. Origin and Breeding History of the Variety
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☒ YES *(If "yes", answer items 20 and 21 below)* ☐ NO *(If "no," go to item 22)*

20. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF CLASSES? ☐ YES ☐ NO

IF YES, WHICH CLASSES? ☒ FOUNDATION ☐ REGISTERED ☒ CERTIFIED

21. DOES THE OWNER SPECIFY THAT THE CLASSES BE LIMITED AS TO NUMBER OF GENERATIONS? ☐ YES ☒ NO

IF YES, SPECIFY THE NUMBER 1, 2, 3, *etc.* ☐ FOUNDATION ☐ REGISTERED ☐ CERTIFIED

(If additional explanation is necessary, please use the space indicated on the reverse.)

22. HAS THE VARIETY (INCLUDING ANY HARVESTED MATERIAL) OR A HYBRID PRODUCED FROM THIS VARIETY BEEN SOLD, DISPOSED OF, TRANSFERRED, OR USED IN THE U. S. OR OTHER COUNTRIES?

☐ YES ☐ NO

IF YES, YOU MUST PROVIDE THE DATE OF FIRST SALE, DISPOSITION, TRANSFER, OR USE FOR EACH COUNTRY AND THE CIRCUMSTANCES. *(Please use space indicated on reverse.)*

23. IS THE VARIETY OR ANY COMPONENT OF THE VARIETY PROTECTED BY INTELLECTUAL PROPERTY RIGHT *(PLANT BREEDER'S RIGHT OR PATENT)*?

☐ YES ☐ NO

IF YES, GIVE COUNTRY, DATE OF FILING OR ISSUANCE AND ASSIGNED REFERENCE NUMBER. *(Please use space indicated on reverse.)*

24. The owners declare that a viable sample of basic seed of the variety will be furnished with application and will be replenished upon request in accordance with such regulations as may be applicable, or for a tuber propagated variety a tissue culture will be deposited in a public repository and maintained for the duration of the certificate.

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Owner(s) is(are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF OWNER

NAME *(Please print or type)*

CAPACITY OR TITLE

DATE

SIGNATURE OF OWNER
Thom E. Carter Jr

NAME *(Please print or type)*

CAPACITY OR TITLE

DATE
2

STT-470 (2-99) designed by the Plant Variety Protection Office with WordPerfect 6.0a. Replaces STD-470 (6-98) which is obsolete

(See reverse for instructions and information collection burden statement)

200100287

Attachments to Application for Plant Variety Protection Certificate

18A. 1- N7103 was developed by Dr. Thomas E. Carter, Jr., Research Geneticist, USDA-ARS, Raleigh, North Carolina. N7103 is a small-seeded late-maturing soybean adapted to the South Atlantic Coast and Southeastern USA and developed for its potential use in the Japanese soyfoods market.

2- N7103, previously identified as N94-7441, is an F_4-derived selection from the cross of the small-seeded genotypes, 'NTCPR90-143' and 'Pearl'. The parents of NTCPR90-143 were 'Gasoy 17' and 'Vance'. The parents of Pearl were 'G80-1515' x Vance. G80-1515 was derived from a cross of 'Pickett 71' x 'Bedford'. Vance was derived from the cross of 'Essex' and an unknown wild (*Glycine soja, Sieb. and Zucc.)* or semi-wild soybean. NTCPR90-143 and Pearl were crossed in 1991 at Raleigh, NC, and the F_1 was grown at the USDA-ARS Tropical Agriculture Research Station (TARS), Isabela, PR, the following winter. The F_2 plants were advanced using single seed descent at Clayton, NC in 1992 and the following winter at TARS. In 1993, individual F_4 plants were harvested and assayed for 100-seed weight and visual appearance at Clayton, NC. Approximately 40 F_4 plants were selected for progeny increase at Clayton, NC in 1994. N7103 was identified as a promising breeding line in 1995 and continued to perform well in North Carolina in 1996 and 1997.

3- In four years of testing N7103 has performed comparably with standard U.S. cultivars.

4- Off type hila color (slightly darker or lighter) can occur at a rate less than 2%.

18B. - N7103 has yellow seed with shiny luster and clear hila, white flowers, gray pubescence, determinate growth habit, and narrow leaves. N7103 is resistant to Soybean Mosaic Virus, frog eye leaf spot (*Cercospora sojina* Hara), and bacterial pustule (*Xanthomonas campestris pv. glycines* (Nakano) Dye), but susceptible to root knot (*Meloidogyne*) species of nematode.

N7103 matures approximately the same day as 'Haskell' and is adapted to similar latitudes (approximately 31° to 37° North). In 21 regional USDA Cooperative Uniform Soybean Yield Trials, it produced 4% lower yield than Haskell in wide (95 cm) row spacings when grown under full season conditions. In fifteen environments in the North Carolina Official Variety Testing Program, N7103 produced 2% lower yield than did Haskell or 'Cook'. In four North Carolina environments, the 100-seed weight of N7103 averaged 7.8 g and was smaller than that of Cook (16.1g) or 'Pearl'

2001002887

(8.1g). Average seed protein concentration was higher and oil concentration lower for N7103 compared to that of Haskell (43.7 and 17.1% vs. 40.8 and 20.2%) in 1997 on a zero percent moisture basis. N7103 was more lodging resistant than Haskell in 1997, exhibiting an average lodging score of 1, compared with Haskell's average score of 2 [a score of 1 indicates no lodging while 5 indicates a prostrate plant]. N7103 plant height averaged 17 cm shorter than Haskell. N7103 is resistant to pod dehiscence (shattering) after maturation, even when harvest is delayed extensively.

The small seed size of N7103, compared to commodity-type varieties, limits its use to specialty purposes. Seed protein percent is higher and seed size is smaller than most commodity-type varieties.

N7103 was tested at 7 and 14 southern regional locations in 1996 and 1997, respectively, as part of the USDA Cooperative Uniform Soybean Yield Trials. N7103 was also yield tested in fifteen North Carolina environments by the North Carolina Official Variety Testing Program from 1997 through 1999. Please refer to attached Tables 1, 2, and 3.

18C. See attached form.

18D. None.

18E. See attached form.

REPRODUCE LOCALLY. Include form number and date on all reproductions.

Form Approved - OMB No. 0581-0055

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this collection of information is (0581-0055). The time required to complete this information collection is estimated to average 30 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, gender, religion, age, disability, political beliefs, sexual orientation, and marital or family status. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact the USDA's TARGET Center at 202-720-2600 (voice and TDD).

To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 14th and Independence Avenue, SW, Washington, DC 20250-9410 or call (202) 720-5964 (voice and TDD). USDA is an equal opportunity provider and employer.

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY
PLANT VARIETY PROTECTION OFFICE
BELTSVILLE, MD 20705

EXHIBIT C
(Soybean)

OBJECTIVE DESCRIPTION OF VARIETY
SOYBEAN (*Glycine max* (L.) Merr.)

NAME OF APPLICANT(S) USDA- Agricultural Research Service

ADDRESS *(Street and No. or R.F.D. No., City, State, and ZIP Code)*

3127 Ligon St.
Box 7631
Raleigh NC 27607

FOR OFFICIAL USE ONLY
PVP NUMBER 200100287

VARIETY NAME
N7103

TEMPORARY OR EXPERIMENTAL DESIGNATION
N94-7441

PLEASE READ ALL INSTRUCTIONS CAREFULLY: Place the appropriate number that describes the varietal character of this variety in the boxes below. Place a zero in the first box (e.g. [0][9][9] **or** [0][9] **) when number is either 99 or less or 9 or less respectively. Data for quantitative plant characters should be based on a minimum of 100 plants. Comparative data should be determined from varieties entered in the same trial. Royal Horticultural Society or any recognized color standard may be used to determine plant colors; designate system used:**

Please answer all questions for your variety; lack of response may delay progress of your application.

A. MORPHOLOGY

Seed Shape:

[2]

1 = Spherical (L/W, L/T, and T/W ratios < 1.2)
2 = Spherical-Flattened (L/W ratio > 1.2; L/T ratio < 1.2)
3 = Elongate (L/T ratio > 1.2; T/W ratio < 1.2)
4 = Elongate-Flattened (L/T ratio > 1.2;T/W ratio > 1.2)

L/W= 1.6
L/T= 1.1
T/W= 1.4

Seed Coat Color:

[1]

1 = Yellow 2 = Green 3 = Brown 4 = Black 5 = Other (*Please Specify*) _____

Seed Coat Luster:

[2]

1 = Dull 2 = Shiny

Seed Size:

[0][8] grams/100 seeds

Hilum Color:

[1]

1 = Buff 2 = Yellow 3 = Brown 4 = Gray 5 = Imperfect Black
6 = Black 7 = Other (*Please Specify*) _____

Cotyledon Color:

[2]

1 = Yellow 2 = Green

A. MORPHOLOGY (*Continued*)

200100287

Seed Protein Peroxidase Activity:

[1] 1 = Low 2 = High

Hypocotyl Color:

[1] 1 = Green 'Evans' or 'Davis' | 2 = Green with Bronze Bands below Cotyledon 'Woodworth' or 'Tracy' | 3 = Light Purple below Cotyledons 'Beeson' or 'Pickett 71' | 4 = Dark Purple extending to unifoliolate leaves ('Hodgson', 'Coker', or 'Hampton 266A')

Leaf Shape:

[1] 1 = Lanceolate 2 = Oval 3 = Ovate 4 = Other (*Please Specify*) _____

Flower Color:

[1] 1 = White 2 = Purple 3 = White with a Purple Throat

Pod Color:

[1] 1 = Tan 2 = Brown 3 = Black

Pubescence Color:

[1] 1 = Gray 2 = Brown (Tawny) 3 = Light Tawny

Plant Habit:

[1] 1 = Determinate 2 = Semi - Determinate 3 = Indeterminate 4 = Intermediate

Maturity Group:

[1][0]

1 = 000 2 = 00 3 = 0 4 = I 5 = II
6 = III 7 = IV 8 = V 9 = VI 10 = VII
11 = VIII 12 = IX 13 = X 14 = XI 15 = XII

Maturity Subgroup:

[8] Please enter a value from 0 - 9

B. DISEASE REACTIONS 0 = Not Tested 1 = Susceptible 2 = Resistant 3 = Tolerant

Bacterial

[2] Bacterial Pustule (*Xanthomonas campestris* pv. *glycines* (Nakano) Dye)

[0] Bacterial Blight (*Pseudomonas syringae* pv. *glycinea* (Coerper) Young, Dye, & Wilkie)

[0] Wildfire Blight (*Pseudomonas syringae* pv. *tabaci* (Wolf & Foster) Young, Dye, & Wilkie)

Fungal

[0] Brown Spot (*Septoria glycines* Hemmi)

B. DISEASE REACTIONS (*Continued*) 0 = Not Tested 1 = Susceptible 2 = Resistant 3 = Tolerant

20010087

Frogeye Leaf Spot (*Cercospora sojina* Hara)

[ ] race 1 [ ] race 2 [ ] race 3 [ ] race 4

[ ] race 5 [ ] race 6 [2] Other (*Please Specify*) Resistant to local races in the field

[0] Target Spot (*Corynespora cassiicola* (Berk. & Curt.) Wei)

[0] Downey Mildew (*Peronospora trifoliorum* var. *manchurica* (Naum.) Syd. ex Gäum)

[0] Powdery Mildew (*Microsphaera diffusa* Cke. & Pk.)

[0] Brown Stem Rot (*Phialophora gregata* (Allington & Chamberlain) W. Gams.)

[0] Stem Canker (*Diaporthe phaseolorum* (Cke. & Ell.) Sacc. var. *caulivora* Athow & Caldwell)

[0] Pod and Stem Blight (*Diaporthe phaseolorum* (Cke. & Ell.) Sacc. var. *sojae* (Lehman) Wehm.)

[0] Purple Seed Stain (*Cercospora kikuchii* (T. Matsu. & Tomoyasu) Gardener)

[0] Rhizoctonia Root Rot (*Rhizoctonia solani* Kühn)

Phytophthora Root Rot (*Phytophthora megasperma* Drechs. f. sp. *glycinea* (Kuan & Erwin))

[0] race 1	[0] race 8	[0] race 15	[0] race 22
[0] race 2	[0] race 9	[0] race 16	[0] race 23
[0] race 3	[0] race 10	[0] race 17	[0] race 24
[0] race 4	[0] race 11	[0] race 18	[0] race 25
[0] race 5	[0] race 12	[0] race 19	[0] race 26
[0] race 6	[0] race 13	[0] race 20	[0] Other (*Please Specify*) :
[0] race 7	[0] race 14	[0] race 21	_____

[0] Bud Blight (Tobacco Ringspot Virus)

[0] Yellow Mosaic (Bean Yellow Mosaic Virus)

[0] Cowpea Mosaic (Cowpea Chlorotic Virus)

[0] Pod Mottle (Bean Pod Mottle Virus)

B. DISEASE REACTIONS (*Continued*) 0 = Not Tested 1 = Susceptible 2 = Resistant 3 = Tolerant

[2] Seed Mottle (Soybean Mosaic Virus)

Nematode

20010087

Soybean Cyst Nematode (*Heterodera glycines* Ichinohe)

[1] race 1
[1] race 2
[1] race 3
[1] race 4
[1] race 5
[1] race 6
[1] race 9
[1] race 14 (former r. 4)
[1] Other (*Please Specify*) _____

[0] Lance Nematode (*Hoplolaimus columbus* Sher)

[1] Southern Root Knot Nematode (*Meloidogyne incognita* (Kofoid & White) Chitwood)

[1] Northern Root Knot Nematode (*Meloidogyne hapla* Chitwood)

[1] Peanut Root Knot Nematode (*Meloidogyne arenaria* (Neal) Chitwood)

[0] Reniform Nematode (*Rotylenchus reniformus* Linwood & Olivera)

[1] Javanese Nematode (*Meloidogyne javanica* (Treub) Chitwood)

[ ] Other Nematode (*Please Specify*) _____

C. PHYSIOLOGICAL RESPONSES 0 = Not Tested 1 = Susceptible 2 = Resistant 3 = Tolerant

[0] Iron Chlorosis on Calcareous Soil

[0] Phosphorus

[0] Boron

[0] Aluminum

[0] Salt

[0] Drought

[2] Other (*Please Specify*) (shattering) pod dehiscence

D. INSECT REACTIONS 0 = Not Tested 1 = Susceptible 2 = Resistant 3 = Tolerant

[0] Mexican Bean Beetle (*Epilachna varivestis* Mulsant)

[0] Potato Leaf Hopper (*Empoasca fabae* (Harris))

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[ ] Other (*Please Specify*) _____

E. HERBICIDE REACTIONS 0 = Not Tested 1 = Susceptible 2 = Resistant

[0] Metribuzin

[0] Bentazone

[0] Sulfonylurea

[1] Glyphosate

[0] Glufosinate

[0] Pendimethalin

[ ] Other (*Please Specify*) _____

F. TRANSGENIC COMPOSITION

Has the development of the Subject Variety included the insertion or removal of genetic material? [ ] YES [X] NO
If yes, please complete the following information requests*. Use additional pages if necessary.

1. Please state the vector's name:
2. Please state the vector components:
3. Please describe the genetic material successfully transferred into the Subject Variety:
4. Please describe the insertion protocol:

* A literature citation(s) explaining the four information requests above may be an acceptable alternative to completion of the "Transgenic Composition" portion of this form.

G. BIOCHEMICAL MARKERS

Please describe any biochemical information here which you believe will be helpful in further describing the Subject Variety (*e.g.* Simple Sequence Repeats, Restriction Fragment Length Polymorphisms, Isozymic Characterization). Use additional pages if necessary.

H. COMMENTS

200100287

20010087

The United States Department of Agriculture
Agricultural Research Service
Washington, DC 20250

NOTICE OF RELEASE OF *N7103* SOYBEAN CULTIVAR

The U.S. Department of Agriculture announces the release of soybean [*Glycine max* (L.) Merr.] cultivar N7103. N7103 is a small-seeded late-maturing soybean adapted to the South Atlantic Coast and Southeastern USA and developed for its potential use in the Japanese soyfoods market. N7103 was developed by Dr. Thomas E. Carter, Jr., Research Geneticist, USDA-ARS, Raleigh, North Carolina.

N7103, previously identified as N94-7441, is an F_4-derived selection from the cross of the small-seeded genotypes, 'NTCPR90-143' and 'Pearl'. The parents of NTCPR90-143 were 'Gasoy 17' and 'Vance'. The parents of Pearl were 'G80-1515' x Vance. G80-1515 was derived from a cross of 'Pickett 71' x 'Bedford'. Vance was derived from the cross of 'Essex' and an unknown wild (*Glycine soja, Sieb. and Zucc.)* or semi-wild soybean. NTCPR90-143 and Pearl were crossed in 1991 at Raleigh, NC, and the F_1 was grown at the USDA-ARS Tropical Agriculture Research Station (TARS), Isabela, PR, the following winter. The F_2 plants were advanced using single seed descent at Clayton, NC in 1992 and the following winter at TARS. In 1993, individual F_4 plants were harvested and assayed for 100-seed weight and visual appearance at Clayton, NC. Approximately 40 F_4 plants were selected for progeny increase at Clayton, NC in 1994. N7103 was identified as a promising breeding line in 1995 and continued to perform well in North Carolina in 1996 and 1997. N7103 was tested at 7 and 14 southern regional locations in 1996 and 1997, respectively, as part of the USDA Cooperative Uniform Soybean Yield Trials. N7103 was also yield tested in fifteen North Carolina environments by the North Carolina Official Variety Testing Program from 1997 through 1999.

N7103 matures approximately the same day as 'Haskell' and is adapted to similar latitudes (approximately 31° to 37° North). In 21 regional USDA Cooperative Uniform Soybean Yield Trials, it produced 4% lower yield than Haskell in wide (95 cm) row spacings when grown under full season conditions. In fifteen environments in the North Carolina Official Variety Testing Program, N7103 produced 2% lower yield than did Haskell or 'Cook'. In four North Carolina environments, the 100-seed weight of N7103 averaged 7.8 g and was smaller than that of Cook (16.1g) or 'Pearl' (8.1g). Average seed protein concentration was higher and oil concentration lower for N7103 compared to that of Haskell (43.7 and 17.1% vs. 40.8 and 20.2%) in 1997 on a zero percent moisture basis.

N7103 was more lodging resistant than Haskell in 1997, exhibiting an average lodging score of 1, compared with Haskell's average score of 2 [a score of 1 indicates no lodging while 5 indicates a prostrate plant]. N7103 plant height averaged 17 cm shorter than Haskell. N7103 is resistant to pod dehiscence (shattering) after maturation, even when harvest is delayed extensively. N7103 has yellow seed with shiny luster and clear hila, white flowers, gray pubescence, determinate growth habit, and narrow leaves. N7103 is resistant to Soybean Mosaic Virus, frog eye leaf spot (*Cercospora sojina* Hara), and bacterial pustule (*Xanthomonas campestris pv. glycines* (Nakano) Dye), but susceptible to root knot (*Meloidogyne*) species of nematode. The small seed size of N7103, compared to commodity-type varieties, limits its use to specialty purposes.

Breeder's seed of N7103 will be maintained by the Soybean and Nitrogen Fixation Unit, USDA-ARS, 3127 Ligon St., Raleigh, NC 27607. Small quantities can be obtained by request from Thomas E. Carter. Jr. Seed of this release will be deposited in the National Plant Germplasm System where it will be available for research purposes, including development and commercialization of new cultivars. N7103 will be submitted for U.S. Plant Variety Protection. It is requested that appropriate recognition be made if this germplasm contributes to the development of a new breeding line or cultivar. USDA intends to grant an exclusive license for production and sale of this release to North Carolina State University, Raleigh, NC. A note of this intent will be published in the Federal Register.

Floyd A. Horn

Administrator, U.S. Department of Agriculture
Agricultural Research Service

5/17/00

Date

Table 1. Agronomic performance of advanced soybean breeding line in the USDA Cooperative Uniform Soybean Yield Trials.

	Southern Region 1996†							Southern Region 1997 ‡						
GENOTYPES	MATURITY	YIELD	100 SEED WT.	PROTEIN	OIL	LODGE	PLANT HEIGHT	MATURITY	YIELD	100 SEED WT.	PROTEIN	OIL	LODGE	PLANT HEIGHT
	Oct 1=1	bu/ac	g	%	%	1-5	inch	Oct 1=1	bu/ac	g	%	%	1-5	inch
N94-7441	20	47	8.5	44.9	19.0	1.5	31	17	39	8.4	43.7	17.1	1	28
BENNING	18	50	14.6	41.9	21.7	1.5	33	19	41	14.7	41.5	20.3	2	33
HASKELL	19	51	17.4	42.0	21.8	2.1	37	20	40	14.5	40.8	20.2	2	35
LSD(0.05)		7		1.0	0.7				4	2.2				

† Mean of 7 locations in 1996
‡ Mean of 14 locations in 1997

Table 2. Yield of advanced soybean breeding line in Official North Carolina State Variety Testing in 1997-1999.

N.C. OFICIAL VARIETY TESTING 1997-1999

Mean Of 5 Tidewater And Coastal Plains Locations

GENOTYPES	MATURITY Oct. 1=1	YIELD BU/AC
N94-7441	31	41
BENNING	33	41
HASKELL	31	42
COOK	33	42

Table 3. Yield, 100-seed weight and maturity of an advanced breeding line in North Carolina during 1995-1997.

GENOTYPES	1995 Plymouth	1996 Windblow	1996 Whiteville	1997 Plymouth	MEAN
			YIELD (BU/AC)		
N94-7441	49	38	42	50	45
PEARL	48	38	40	43	42
COOK	50	39	50	51	48
LSD(0.05)	4	4	5	5	5
			100-SEED WT. (g)		
N94-7441	7.9	8.3	7.4	7.4	7.8
PEARL	8.5	7.8	8.5	7.7	8.1
COOK	16.3	16.0	16.5	15.6	16.1
LSD(0.05)	0.6	1.1	1.1	0.5	0.7
			MATURITY (Oct. 1=1)		
N94-7441	30	26	25	31	28
PEARL	30	29	27	30	29
COOK	31	30	30	31	31
LSD(0.05)	2	4	6	4	2

+ Swell Ratio = weight of seed after 14 hours of inbibition in water divided by initial dry weight.

1. Agronomic performance of advanced soybean breeding line in the USDA Cooperative Uniform Soybean Yield Trials.

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GENOTYPES	MATURITY	YIELD	100 SEED WT.	PROTEIN	OIL	LODGE	PLANT HEIGHT	MATURITY	YIELD	100 SEED WT.	PROTEIN	OIL	LODGE	PLANT HEIGHT
	Oct 1=1	bu/ac	g	%	%	1-5	inch	Oct 1=1	bu/ac	g	%	%	1-5	inch
N7103	20	47	8.5	44.9	19.0	1.5	31	17	39	8.4	43.7	17.1	1	28
BENNING	18	50	14.6	41.9	21.7	1.5	33	19	41	14.7	41.5	20.3	2	33
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U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE

EXHIBIT E
STATEMENT OF THE BASIS OF OWNERSHIP

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF APPLICANT(S)
USDA- Agricultural Research Service

2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER
N94-7441

3. VARIETY NAME
N7103

4. ADDRESS *(Street and No., or R.F.D. No., City, State, and ZIP, and Country)*
3127 Ligon St.
Box 7631
Raleigh NC 27607

5. TELEPHONE *(include area code)*
(919) 513-1480

6. FAX *(include area code)*
(919) 856-4598

7. PVPO NUMBER 200100287

8. Does the applicant own all rights to the variety? *Mark an "X" in appropriate block.* If no, please explain. [X] YES [ ] NO

9. Is the applicant (individual or company) a U.S. national or U.S. based company? [ ] YES [X] NO
If no, give name of country

10. Is the applicant the original owner? [X] YES [ ] NO *If no, please answer one of the following:*

a. If original rights to variety were owned by individual(s), is (are) the original owner(s) a U.S. national(s)?

N/A [ ] YES [ ] NO If no, give name of country

b. If original rights to variety were owned by a company(ies), is(are) the original owner(s) a U.S. based company?

N/A [ ] YES [ ] NO If no, give name of country

11. Additional explanation on ownership *(if needed, use reverse for extra space)*:

PLEASE NOTE:

Plant variety protection can be afforded only to owners (not licensees) who meet one of the following criteria:

1. If the rights to the variety are owned by the original breeder, that person must be a U.S. national, national of a UPOV member country, or national of a country which affords similar protection to nationals of the U.S. for the same genus and species.

2. If the rights to the variety are owned by the company which employed the original breeder(s), the company must be U.S. based, owned by nationals of a UPOV member country, or owned by nationals of a country which affords similar protection to nationals of the U.S. for the same genus and species.

3. If the applicant is an owner who is not the original owner, both the original owner and the applicant must meet one of the above criteria.

The original breeder/owner may be the individual or company who directed final breeding. See Section 41(a)(2) of the Plant Variety Protection Act for definition.

According to the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to compete this information collection is estimated to average 10 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

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